If you are using a printed copy of this procedure, and not the on-screen version, then you MUST make sure the dates at the bottom of the printed copy and the on-screen version match.
The on-screen version of the Collider-Accelerator Department Procedure is the Official Version.
Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ Training Office, Bldg. 911A.

C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

4.16.f NASA / A3 Access Control Test

C-A-OPM Procedures in which this Attachment is used.		
4.16		

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials
_____	_____	_____	_____
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Approved: _____***Signature on File***_____ _____
Collider-Accelerator Department Chairman Date

V. Castillo

4.16.f.1 Test of SEB A-Line and A Primary at Enclosure 4874 (No. wall of East Expt area, A-Line)

PLACE	**SEB A-Line** on **Controlled Access**	
VERIFY	Relay **4874-K01** is	**ON**
REMOVE	**SEB A-Line** from **Controlled Access**	
VERIFY	Relay **4874-K01** is	**OFF**
PLACE	**A Primary Line** safely **OFF**	
VERIFY	Relay **4874-K02** is	**ON**
REMOVE	**A Primary Line** from safely **OFF**	
VERIFY	Relay **4874-K02** is	**OFF**

4.16.f.2 Test of Power Supplies: A1D3, A1D4, A1D5-7

PLACE	**A1 D3 Power Supply** safely **OFF**	
VERIFY	Relay **4874-K04** is	**ON**
REMOVE	**A1 D3 Power Supply** safely **OFF**	
VERIFY	Relay **4874-K04** is	**OFF**
PLACE	**A1 D4 Power Supply** safely **OFF**	
VERIFY	Relay **4874-K08** is	**ON**
REMOVE	**A1 D4 Power Supply** safely **OFF**	
VERIFY	Relay **4874-K08** is	**OFF**
SET	**A1D3 current less** than **Maximum**	
VERIFY	Relay **4874-K30** is	**ON**
VERIFY	Relay **24I-K12** is	**ON**
SET	**A1D3 current greater** than **Maximum**	
VERIFY	Relay **4874-K30** is	**OFF**
VERIFY	Relay **24I-K12** is	**OFF**
SET	**A1D3 current less** than **Minimum**	
VERIFY	Relay **4874-K30** is	**OFF**
VERIFY	Relay **24I-K12** is	**OFF**
SET	**A1D3 current greater** than **Minimum**	
VERIFY	Relay **4874-K30** is	**ON**
VERIFY	Relay **24I-K12** is	**ON**
SET	**A1D4 current less** than **Maximum**	
VERIFY	Relay **4874-K11** is	**ON**
VERIFY	Relay **24F-K14** is	**ON**
SET	**A1D4 current greater** than **Maximum**	
VERIFY	Relay **4874-K11** is	**OFF**
VERIFY	Relay **24F-K14** is	**OFF**
SET	**A1D4 current greater** than **Minimum**	
VERIFY	Relay **4874-K11** is	**ON**
VERIFY	Relay **24F-K14** is	**ON**

SET	**A1D4 current less** than **Minimum**	
VERIFY	Relay **4874-K11** is	**OFF**
VERIFY	Relay **24F-K14** is	**OFF**
SET	**A1D5 current greater** than **Minimum** and **less than Maximum**	
SET	**A1D6 current greater** than **Minimum** and **less than Maximum**	
SET	**A1D7 current greater** than **Minimum** and **less than Maximum**	
VERIFY	Relay **4874-K15** is	**ON**
SET	**A1D5 current greater** than **Maximum**	
VERIFY	Relay **4874-K15** is	**OFF**
SET	**A1D5 current less** than **Maximum**	
VERIFY	Relay **4874-K15** is	**ON**
SET	**A1D5 current greater** than **Minimum**	
VERIFY	Relay **4874-K15** is	**ON**
SET	**A1D5 current less** than **Minimum**	
VERIFY	Relay **4874-K15** is	**OFF**
SET	**A1D5 current greater** than **Minimum** and **less than Maximum**	
VERIFY	Relay **4874-K15** is	**ON**
SET	**A1D6 current greater** than **Maximum**	
VERIFY	Relay **4874-K15** is	**OFF**
SET	**A1D6 current less** than **Maximum**	
VERIFY	Relay **4874-K15** is	**ON**
SET	**A1D6 current greater** than **Minimum**	
VERIFY	Relay **4874-K15** is	**ON**
SET	**A1D6 current less** than **Minimum**	
VERIFY	Relay **4874-K15** is	**OFF**
SET	**A1D6 current greater** than **Minimum** and **less than Maximum**	
VERIFY	Relay **4874-K15** is	**ON**
SET	**A1D7 current greater** than **Maximum**	
VERIFY	Relay **4874-K15** is	**OFF**
SET	**A1D7 current less** than **Maximum**	
VERIFY	Relay **4874-K15** is	**ON**
SET	**A1D7 current greater** than **Minimum**	
VERIFY	Relay **4874-K15** is	**ON**
SET	**A1D7 current less** than **Minimum**	
VERIFY	Relay **4874-K15** is	**OFF**
SET	**A1D7 current greater** than **Minimum** and **less than Maximum**	
VERIFY	Relay **4874-K15** is	**ON**

4.16.f.3 Test of Chipmunks

SET	**A3 Down Stream Chipmunk O.K.**	
VERIFY	Relay **4874-K17** is	**ON**
SET	**A3** Down Stream Chipmunk **not** O.K.	
VERIFY	Relay **4874-K17** is	**OFF**
SET	**A2 East Wall Chipmunk O.K.**	
VERIFY	Relay **4874-K35** is	**ON**
SET	**A2** East Wall Chipmunk **not** O.K.	
VERIFY	Relay **4874-K35** is	**OFF**
SET	**A3 Cave Top Chipmunk O.K.**	
VERIFY	Relay **4874-K33** is	**ON**
SET	**A3** Cave Top Chipmunk **not** O.K.	
VERIFY	Relay **4874-K33** is	**OFF**
SET	**A3 East Down Stream Chipmunk O.K.**	
VERIFY	Relay **4874-K34** is	**ON**
SET	**A3** East Down Stream Chipmunk **not** O.K.	
VERIFY	Relay **4874-K34** is	**OFF**
SET	**A3 East Up Stream Chipmunk O.K.**	
VERIFY	Relay **4874-K27** is	**ON**
SET	**A3** East Up Stream Chipmunk **not** O.K.	
VERIFY	Relay **4874-K27** is	**OFF**
SET	**A3 West Up Stream Chipmunk O.K.**	
VERIFY	Relay **4874-K23** is	**ON**
SET	**A3** West Up Stream Chipmunk **not** O.K.	
VERIFY	Relay **4874-K23** is	**OFF**

4.16.f.4 Test of Heavy Ion Mode selection from Enclosures 4874 and 5482

SELECT	**AGS in Heavy Ion Mode** for **Primary**	
VERIFY	Relay **5482-KA** is	**ON**
VERIFY	Relay **5482-KC** is	**ON**
DESELECT	**AGS in Heavy Ion Mode** for **Primary**	
VERIFY	Relay **5482-KA** is	**OFF**
VERIFY	Relay **5482-KC** is	**OFF**
SELECT	**AGS in Heavy Ion Mode** for **Redundant**	
VERIFY	Relay **5482-KB** is	**ON**
VERIFY	Relay **5482-KD** is	**ON**
DESELECT	**AGS in Heavy Ion Mode** for **Redundant**	
VERIFY	Relay **5482-KB** is	**OFF**
VERIFY	Relay **5482-KD** is	**OFF**
SELECT	**Heavy Ion Mode** for **Primary**	
VERIFY	Relay **4874-K28** is	**ON**
DESELECT	**Heavy Ion Mode** for **Primary**	
VERIFY	Relay **4874-K28** is	**OFF**
SELECT	**Heavy Ion Mode** for **Redundant**	
VERIFY	Relay **4874-K32** is	**ON**
DESELECT	**Heavy Ion Mode** for **Redundant**	

VERIFY	Relay **4874-K32** is	**OFF**

4.16.f.5 Test of A Primary gate

OPEN	**A Primary gate**	
REMOVE	**Crash Glass**	
OPEN	Crash Glass **switch**	
VERIFY	Crash Glass **light** is	**OFF**
CLOSE	Crash Glass **switch**	
VERIFY	Crash Glass **light** is	**ON**
REPLACE	Crash Glass	
OPEN	Door **switch**	
VERIFY	Door switch **light** is	**OFF**
CLOSE	Door **switch**	
VERIFY	Door switch **light** is	**ON**
OPEN	Latch **switch**	
VERIFY	Latch switch **light** is	**OFF**
CLOSE	Latch **switch**	
VERIFY	Latch switch **light** is	**ON**
OPEN	Redundant **switch**	
VERIFY	Relay **24AK3** (above MCR cage area) is	**OFF**
CLOSE	Redundant **switch**	
VERIFY	Relay **24AK3** is	**ON**
CLOSE	**A Primary gate**	

4.16.f.6 Test of A3 Internal gate

OPEN	**A3 Experiment gate**	
REMOVE	**Crash Glass**	
OPEN	Crash Glass **switch**	
VERIFY	Crash Glass **light** is	**OFF**
CLOSE	Crash Glass **switch**	
VERIFY	Crash Glass **light** is	**ON**
REPLACE	Crash Glass	
OPEN	Door **switch**	
VERIFY	Door switch **light** is	**OFF**
CLOSE	Door **switch**	
VERIFY	Door switch **light** is	**ON**
OPEN	Latch **switch**	
VERIFY	Latch switch **light** is	**OFF**
CLOSE	Latch **switch**	
VERIFY	Latch switch **light** is	**ON**

4.16.f.7 Test of A3 Internal Gate Sweep in HI Mode

OPEN	**A3 Internal gate**	
VERIFY	**Ready** light on **Check Station** is	**ON**
RESET	**East Check** Station	
VERIFY	**Reset** light on **Check Station** is	**ON**
RESET	**West Check** Station	
VERIFY	**Reset** light on **Check Station** is	**ON**
EXIT & CLOSE	**A3 Internal gate**	
RESET	**A3 Internal gate**	
VERIFY	**Reset** light at **A3 Internal gate** is	**ON**
VERIFY	**Not Reset** light at **A3 Internal gate** is	**OFF**
OPEN	**A3 Internal gate**	
VERIFY	**Sweep is Lost**	
VERIFY	**Gate not Reset**	
VERIFY	**Gate can't be Reset**	

4.16.f.8 Test of NASA Internal gate in Proton Mode

OPEN	**NASA Internal gate**	
REMOVE	**Crash Glass**	
OPEN	Crash Glass **switch**	
VERIFY	Crash Glass **light** is	**OFF**
CLOSE	Crash Glass **switch**	
VERIFY	Crash Glass **light** is	**ON**
REPLACE	Crash Glass	
OPEN	Door **switch**	
VERIFY	Door switch **light** is	**OFF**
CLOSE	Door **switch**	
VERIFY	Door switch **light** is	**ON**
OPEN	Latch **switch**	
VERIFY	Latch switch **light** is	**OFF**
CLOSE	Latch **switch**	
VERIFY	Latch switch **light** is	**ON**

4.16.f.9 Test of NASA Internal Gate Sweep, Proton Mode

CLOSE	**NASA Internal gate**	
VERIFY	**Ready** light on **Check Station** is	**ON**
RESET	**Check** Station	
VERIFY	**Reset** light on **Check Station** is	**ON**
EXIT & CLOSE	**NASA Internal gate**	
RESET	**NASA Internal gate**	
VERIFY	**Reset** light at **NASA Internal gate** is	**ON**
VERIFY	**Not Reset** light at **NASA Internal gate** is	**OFF**
OPEN	**NASA Internal gate**	
VERIFY	**Sweep is Lost**	
VERIFY	**Gate not reset**	
VERIFY	**Gate can't be reset**	

4.16.f.10 Reset verification at A Primary gate in HI Mode.

EXIT	**A** Primary gate with **Simultaneous release, leave** one person **inside**	
VERIFY	**MCR** sweep light (**NASA** Access Console [**NAC**]) is	**ON**
VERIFY	**NASA** internal gate **Reset** light at **A Primary gate** is	**ON**
VERIFY	**A3** internal gate **Reset** light at **A Primary gate** is	**ON**
RESET	**A Primary gate**	
VERIFY	**Reset** light is	**ON**
VERIFY	Relay **23UK5** is	**ON**
RESET	**A** Primary **Redundant reset** from **MCR**	
VERIFY	**Redundant reset** light at **MCR** is	**OFF**
VERIFY	Relay **24AK13** is	**ON**
OPEN	**A** Primary Gate with simultaneous release and 683 key	
CLOSE	Close gate	
VERIFY	Sweep is not lost	
OPEN	**A Primary gate** from **inside**	
VERIFY	**(NASA sweep is lost) NASA** internal gate **Reset** light is	**OFF**
VERIFY	**(NASA sweep is lost) A3** internal gate **Reset** light is	**ON**
VERIFY	**MCR Sweep** light (NASA Access Console [**NAC**]) is	**OFF**
VERIFY	Relay **23UK5** is	**OFF**
VERIFY	Relay **24AK13** is	**OFF**
RESET	**A Primary Gate** with 683 key.	**FAIL**

4.16.f.11 Test of remote reset from MCR

SWEEP	**NASA**	
RESET	**A** primary gate from **MCR**	
VERIFY	**A** primary gate **Reset** light is	**ON**

4.16.f.12 Test of NASA Remote Access and Iris Scanner

IDENTIFY	**Qualified** personnel with **Iris Scanner**	
VERIFY	**Release of 1st Key** from **Keytree** in	**≤ 2 secs**
VERIFY	**In ≤ 2 secs Keytree Enable** light is	**ON**
VERIFY	**A Primary gate reset** light is	**OFF**
VERIFY	**Redundant reset** light at **A Primary gate** is	**OFF**
IDENTIFY	**Qualified** personnel with **Iris Scanner**	
VERIFY	**Release of 2nd Key** from **Keytree** in	**≤ 2 secs**
IDENTIFY	**Qualified** personnel with **Iris Scanner**	
VERIFY	**Release of 3rd Key** from **Keytree** in	**≤ 2 secs**
IDENTIFY	**Qualified** personnel with **Iris Scanner**	
VERIFY	**Release of 4th Key** from **Keytree** in	**≤ 2 secs**
IDENTIFY	**Qualified** personnel with **Iris Scanner**	
VERIFY	**Release of 5th Key** from **Keytree** in	**≤ 2 secs**
RETURN	**2nd, 3rd, 4th and 5th** key to **Keytree**	
OPEN	**A Primary** gate with **1st Key** and **Simul. Release** from **MCR**	

CLOSE	**A Primary** gate **maintaining** Simul. Release from **MCR**	
VERIFY	**During** Simul Release and gate **open, Gate Closed** light at **MCR** is	**ON**
VERIFY	**During** Simul Release and gate **closed, Gate-Closed** light at **MCR** is	**OFF**
RELEASE	**Simultaneous Release** at **MCR**	
VERIFY	**Sweep** light at **MCR NAC** is	**ON**

4.16.f.13 Test of loss of NASA sweep with Dropped Simultaneous Release

OPEN	**A Primary** gate with **1st Key** and **Simul. Release** from **MCR**	
DROP	**Simultaneous Release** while gate is	**OPEN**
VERIFY	**(NASA Sweep is lost)** Sweep **light** at **MCR NAC** is	**OFF**
CLOSE	**A Primary gate** with **One** person **inside**	

4.16.f.14 Test of loss of NASA sweep with Exit from A Primary gate without Simultaneous Release

SWEEP	**NASA**	
VERIFY	**NASA** is	**SWEPT**
EXIT	**A Primary gate** without **Simultaneous release**	
VERIFY	**NASA Sweep is lost** and **Sweep light** at **MCR NAC** is	**OFF**

4.16.f.15 Reset verification at A Primary gate in Proton Mode.

SWEEP	**NASA and A3**	
EXIT	**A** Primary gate with **Simultaneous release, leave** one person **inside**	
VERIFY	**MCR Sweep** light (**NASA** Access Console [**NAC**]) is	**ON**
VERIFY	**NASA** internal gate **Reset** light at **A Primary gate** is	**ON**
VERIFY	**A3** internal gate **Reset** light at **A Primary gate** is	**ON**
RESET	**A Primary gate**	
VERIFY	**Reset** light is	**ON**
VERIFY	Relay **23UK5** is	**ON**
RESET	**A** Primary gate **Redundant reset** from **MCR**	
VERIFY	**Redundant reset** light at **MCR** is	**OFF**
VERIFY	Relay **24AK13** is	**ON**
OPEN	**A Primary gate** from **inside**	
VERIFY	**(A3 sweep is lost) A3** internal **Sweep lights** are	**OFF**
VERIFY	**(A3 sweep is lost) NASA** internal gate **Reset** light is	**ON**
VERIFY	**MCR Sweep** light (NASA Access Console [**NAC**]) is	**OFF**
VERIFY	Relay **23UK5** is	**OFF**
RESET	**A Primary gate** with 683 key	**FAIL**
VERIFY	Relay **24AK13** is	**OFF**

4.16.f.16 Test of Interlock on A Primary

SET	**Interlock** on **A Primary** beam clearance **o.k.**	
VERIFY	Relay **4874-K26** is	**ON**
VERIFY	Relay **23M-K1** is	**ON**
SET	**Interlock** on **A Primary** beam clearance **not o.k.**	
VERIFY	Relay **4874-K26** is	**OFF**
VERIFY	Relay **23M-K1** is	**OFF**

4.16.f.17 Test of Logic, Ref. Schematic D40-E348

VERIFY	**Logic for** 110 AC Power at **Terminal 4874-B13** (Reset Functn) is	**VALID**
VERIFY	**Logic for Relay 4874-K18** (NASA primary interlock on Primary beam) is	**VALID**
VERIFY	**Logic for Relay 4874-K22** (NASA redundant interlock on Primary beam) is	**VALID**
VERIFY	**Logic for Relay 4874-K29** (Restricted Access) is	**VALID**
VERIFY	**Logic for Relay 4874-K26** (A1 Primary interlock) is	**VALID**
VERIFY	**Logic for** 110 AC Power at **Terminal 4874-D12** (NASA gate primary Bypass) is	**VALID**
VERIFY	**Logic for** 110 AC Power at **Terminal 4874-D14** (NASA gate redundant Bypass) is	**VALID**

END OF TEST PROCEDURE

TTL: Sign for completion of initial testing: _____

Date: _____ / _____ / _____

TTL: Sign for completion of final testing: _____

Date: _____ / _____ / _____

C-AD AGS Acceptance Test Procedure: NASA/A3 Access Control Test

C-A-OPM 4.16.f NASA/A3 Access Control Test

Division A Software Filename and Checksum: Title:_____ Checksum:_____

Division B Software Filename and Checksum: Title:_____ Checksum:_____

Initial testing complete:

Test Team Leader's Name (Print): _____ **Life Number:** _____

Test Team Leader's Name (Sign): _____ **Date:** _____

Acceptance test procedure complete (following repairs and re-testing, if required):

Test Team Leader's Name (Print): _____ **Life Number:** _____

Test Team Leader's Name (Sign): _____ **Date:** _____

Test results reviewed by:

Safety Section Head's Name (Print): _____ **Life Number:** _____

Safety Section Head's Name (Sign): _____ **Date:** _____

Test results accepted by Radiation Safety Committee:

RSC Member's Name (Print): _____ **Life Number:** _____

RSC Member's Name (Sign): _____ **Date:** _____